



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,845	08/26/2005	Martin Vorbach	2885/86	9148
26646 7590 07/24/2007 KENYON & KENYON LLP ONE BROADWAY NEW YORK, NY 10004			EXAMINER VICARY, KEITH E	
			ART UNIT 2183	PAPER NUMBER
			MAIL DATE 07/24/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/501,845	Applicant(s) VORBACH ET AL.	
	Examiner Keith Vicary	Art Unit 2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 7-14 are pending in this examination. Claims 7-13 are currently amended and claim 14 is added by an amendment filed 6/25/2007. Claims 7-14 are presented for examination.

Claim Objections

2. Claim 14 is objected to because of the following informalities. Appropriate correction is required.

a. Claim 14 recites the limitation "read and write excise," which should presumably be "read and write access," as excise is not disclosed in the specification and does not seem to fit contextually.

3. Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

b. Claim 14 recites the sole limitation "using the register to provide read and write excise when the virtual FIFO dividing line is implemented." Assuming that the limitation "excise" is really "access," this overall limitation seems to be identical to one of the limitations in claim 11 upon which it is dependent on, and thus does not further limit the subject matter of a previous claim.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claim 7 recites the limitation "the field of data processing cells" in line 5. There is insufficient antecedent basis for this limitation in the claim, as this limitation could be different from the limitation "a *reconfigurable* field of data processing cells" recited previously.
- c. Claims 8-14 are rejected for failing to alleviate the rejection of claim 7 above.
7. Claim 11 recites the limitation "the program includes a multitask application" in lines 1-2 and the limitation "one of two different tasks of the multitask application" in line 6. It is indefinite as to what is meant by this. For example, typically, many different applications are multitasked, but there is no "multitask application." It is indefinite as to whether the limitation "application" is meant as being a general limitation akin to saying a multitask "use" or whether application is meant by its computer definition of being a program and the like. It is indefinite, given either interpretation, how a single program can include a "multitask application."
- d. Claim 14 is rejected for failing to alleviate the rejection of claim 11 above.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gonion (WO 99/40522) in view of Panwar et al. (US PAT 5941977) and in further view of Gee et al. (Gee) (US 6374286).

10. **Consider claim 7**, Gonion discloses a reconfigurable field of data processing cells (page 5, lines 1-6, macrocells, and page 15, lines 5-7, macrocells in detail); and a data stream memory designed to store at least one of a data stream and parts of the data stream (page 5, lines 7-11, memory block for incoming streams of digital data and page 16, lines 1-8, different data streams). Gonion also discloses determining, for the field of data processing cells, configurations corresponding to a program and by running of which the program is executed, and providing the program to the processor for execution of the program (page 5, lines 1-6, user determined set of interconnected macrocells operating in conjunction to perform real time systolic processing of digital data).

However, Gonion does not explicitly disclose that said data stream memory is in the form of a register. Gonion also does not disclose determining, for each configuration, a respective maximum allowed execution runtime prior to lapse of which the respective configuration is uninterruptible.

On the other hand, Panwar does disclose a register (col. 2, lines 26-29 and col. 7, line 31, registers).

It would have been readily recognized to one of ordinary skill in the art at the time of the invention that one of many motivations of having a register act as a memory would be to allow quick access to data because a register is typically closer to a processor than other forms of memory lower in the memory hierarchy.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the use of Panwar's register with the invention of gonion in order to quickly access data. It would have been readily recognized to one of ordinary skill in the art at the time of the invention that a register's purpose is to store data and thus fits into the environment of Gonion in acting as the data stream memory.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Gonion with the register of Panwar in order to allow quicker access to the data stream.

However, both Gonion and Panwar do not disclose determining, for each configuration, a respective maximum allowed execution runtime prior to lapse of which the respective configuration is uninterruptible.

On the other hand, Gee does disclose of determining, for each applicant, a respective maximum allowed execution runtime prior to lapse of which the respective configuration is uninterruptible (see, for example, col. 28, lines 37-44, watchdog timers which enforce context switches between the various partitions, configurable time-out

limits, or col. 23, lines 56-64, the time duration of the partitions can be of different lengths).

Gee's teaching of his watchdog timer enforces context switches between the various applications to ensure partition scheduling is performed and the processor is kept running in the event of a software error (Gee, col. 28, lines 37-44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Gee with the invention of Gonion and Panwar in order to ensure partition scheduling is performed and the processor is kept running in the event of a software error. It would have been readily recognized to one of ordinary skill in the art at the time of the invention that the applications of Gee, when applied to the invention of Gonion, correlates to the configurations of Gonion.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Gee with the invention of Gonion and Panwar in order to ensure partition scheduling is performed and the processor is kept running in the event of a software error.

11. **Consider claim 8**, the claim is rejected for the same reasons as claim 7 above. In addition, Panwar discloses at least one: i) of a register allocation device to allocate the register, and ii) a register releasing device to release the register (col. 7, lines 31-39, register window allocation and 54-64, register management).

12. **Consider claim 9**, the claim is rejected for the same reasons as claim 7 above.

In addition, Panwar discloses that the register allocation device is preserved over multiple reconfigurations of the reconfigurable field of data processing cells (col. 2, lines 25-42, col. 6, lines 32-36, col. 7, lines 31-39 and 54-64; the multithreading aspect in which each thread has its corresponding registers conserved correlates to the different reconfigurations).

13. **Consider claim 10**, Gonion discloses that the register is a RAM PAE (page 43, lines 10-13, RAM and also in page 50, lines 11-17).

14. Claims 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gonion, Panwar, and Gee as applied to claim 7 above, and further in view of Dockser (US PAT 5860119).

15. **Consider claims 11 and 14**, Gonion discloses a FIFO (page 50, lines 11-17, FIFO), and Panwar discloses a register (col. 2, lines 26-29 and col. 7, line 31 as above). Gee discloses of multitasking and executing of at least one of two different tasks of the multitask application (col. 28, lines 37-44 as above, context switching). However, Gonion, Panwar, and Gee do not explicitly disclose the register configured to provide read and write access when a virtual FIFO dividing line is implemented.

On the other hand, Dockser does disclose register configured to provide read and write access (col. 4, lines 32-35, receive mode and transmit mode, and col. 5, lines 56-65, read and write pointers) when a virtual FIFO dividing line is implemented (col. 3,

lines 10-30, lines 54-56; the last word flag and end-of-packet detection means correlate to the said virtual FIFO dividing line).

Using the invention of Dockser in general makes a FIFO system both simple and inexpensive to implement (Dockser, col. 4, lines 6-40), despite decreases in management overhead.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the FIFO modifications taught by Dockser with the invention of Gonion, Panwar, and Gee in order to implement the FIFO simply and inexpensively while simultaneously minimizing management overhead.

16. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gonion, Panwar, and Gee as applied to claim 7 above, and further in view of Davis et al. (Davis) (US PAT 4041462).

Consider claim 12, Gonion, Panwar, and Gee do not explicitly disclose at least one memory unit configured for use as a stack and being configured to indicate at least one of a stack underflow state and a stack overflow state.

On the other hand, Davis does disclose at least one memory unit configured for use as a stack and being configured to indicate at least one of a stack underflow state and a stack overflow state (col. 14, lines 1-4, limit checking facilities which test for overflow and underflow, and lines 21-32, PSW)

It would have been readily recognized to one of ordinary skill in the art at the time of the invention that stacks in general are an easily implemented method of dynamic

allocation of storage space for data, and a simple efficient mechanism for enqueueing data and/or parameters.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the stacks of Davis with the invention of Gonion, Panwar, and Gee in order to easily implement a method of dynamic allocation of storage space for data, and efficiently enqueue data and/or parameters. , the stacks of Davis would fit into the computing environment of Gonion, Panwar, and Gee as it would have been readily recognized to one of ordinary skill in the art at the time of the invention that stacks are prevalent throughout computing today for a wide range of uses.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the stacks of Davis with the invention of Gonion, Panwar, and Gee in order to easily implement a method of dynamic allocation of storage space for data, and efficiently enqueue data and/or parameters.

17. **Consider claim 13**, the claim is rejected for the same reasons as claim 12 above. In addition, Davis discloses the at least one measuring unit is configured to indicate the at least one of the underflow state and overflow state of an operating system unit (col. 14, lines 1-4 and lines 21-32; also, note the PSW is typically accessed by the operating system).

Response to Arguments

18. Applicant's arguments with respect to claims 7-14 have been considered but are moot in view of the new ground(s) of rejection.

19. Applicant argues throughout arguments that the prior art of record does not teach the newly amended limitations. Due to these newly amended limitations, additional prior art has been brought in which reads on these limitations.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Vicary whose telephone number is (571) 270-

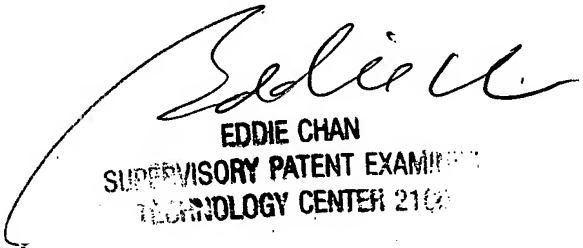
Art Unit: 2183

1314. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on 571-272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

kv



EDDIE CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2183